CLAIMS:

1. A method of determining the position of an object located in the examination area of an MR device, having the steps of

a) generating high-frequency magnetic field in the examination area, which high-frequency magnetic field runs essentially parallel to a main magnetic field that is active at the same time, whereby a component of the high-frequency magnetic field that is perpendicular to the main magnetic field being produced from the high-frequency magnetic field by conversion means fitted on the object, in the vicinity thereof,

b) detecting the nuclear resonance signal excited as a result of the perpendicular component of the high-frequency magnetic field, in conjunction with a gradient magnetic field,

c) evaluating the nuclear resonance signal and determining the position of the object.

2. An MR device for carrying out the method as claimed in Claim 1, having

a) means for generating a main magnetic field in an examination area,

b) means for generating a high-frequency magnetic field in the examination area, which high-frequency magnetic field runs essentially parallel to the main magnetic field,

c) means for generating at least one gradient magnetic field,

d) means for detecting nuclear resonance signals,

e) an evaluation unit for evaluating the nuclear resonance signals,

f) a control unit for controlling the aforesaid components such that the following steps are carried out:

f1) generation of a high-frequency magnetic field in the examination area, which high-frequency magnetic field runs essentially parallel to a main magnetic field that is active at the same time, whereby a component of the magnetic high-frequency field that is perpendicular thereto being generated by conversion means fitted on the object, in the vicinity thereof,

f2) detection of the nuclear resonance signal excited as a result of the perpendicular component of the high-frequency magnetic field, in conjunction with a gradient magnetic field,

f3) evaluation of the nuclear resonance signal and determination of the position of the object.

3. A coil arrangement for an MR device for generating a high-frequency magnetic field in the examination area, which high-frequency magnetic field runs essentially parallel to the main magnetic field of the MR device.

4. Conversion means for an MR device for generating perpendicular components for a high-frequency magnetic field, having at least one coil arrangement with at least one coil, the coil axis of which forms an angle other than 90°, preferably an angle of 45°, with respect to the direction of the high-frequency magnetic field.

5. Conversion means as claimed in Claim 4, wherein the coil arrangement forms a resonant circuit.

6. Conversion means for an MR device for generating perpendicular components for a high-frequency magnetic field, having at least two coil arrangements with in each case at least one coil, wherein the coil axes of the coils form an angle other than 90°, preferably an angle of 45°, with respect to one another.

7. A medical intervention instrument having an invasive portion that can be inserted into the body, on which portion conversion means for carrying out the method as claimed in Claim 1 are arranged.

8. A catheter as claimed in Claim 7.

9. A catheter as claimed in Claim 8, having a carrier body that can be fitted to the catheter tip, on which carrier body three planar coil arrangements are fitted, wherein the coil axes of the coils in each case form an angle other than 90°, preferably an angle of 45°.

10. A computer program or computer program product, which enables the programmable components of an MR device to carry out a method as claimed in Claim 1.